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(54) Title of the Invention: Web site evaluation system, web site evaluation method, and recording medium

[Abstract]

[Problem]

To provide a Web site evaluation system capable of tracking trends in Web page transitions by users who access a Web site and examining whether the transitions intended by the Web site creator were performed.

[Means of Solving the Problem]

A Web site evaluation system 10 according to the present invention has log data input means 11 for inputting the access history to a Web page as log data, an output condition database 14 for storing output conditions for outputting transition data related to transitions for each Web page, a decision means 13 for obtaining the transition history for each Web page on the basis of the log data input by log data input means 11 and deciding whether or not to output transition data based on the obtained transition history and the output conditions stored in the output condition database 14, and transition data output means 15 for outputting the transition data.

[Selected drawing: Fig. 1]

# WEB SITE EVALUATION SYSTEM, WEB SITE EVALUATION METHOD, AND RECORDING MEDIUM

## What Is Claimed Is:

1. A Web site evaluation system for evaluating a Web site having a plurality of Web pages; comprising:

log data input means for inputting an access history to each of said Web pages as log data;

output condition storage means for storing output conditions for outputting transition data relating to transitions for each of said Web pages;

decision means for obtaining the transition history for each of said Web pages on the basis of log information input using the log data input means and deciding whether or not to output the transition data on the basis of the obtained transition history and the output conditions stored in said output condition storage means; and

transition data output means for outputting the transition data in a case in which a decision is made using the decision means to output the transition data.

2. The Web site evaluation system according to Claim 1, wherein the output conditions stored in the output condition storage means are defined by the rate of divergence between standard transitions and the transition history, in a case in which the transitions for each of said Web pages prescribed in advance are treated as the standard transitions.

3. A Web site evaluation method for evaluating Web sites having a plurality of Web pages, comprising:

a step of log data input for inputting the access history to each of said Web pages as log data;

a step of output condition storage for storing output conditions for outputting transition data relating to transitions for each of said Web pages in output condition storage means;

a step of decision for obtaining the transition history for each of said Web pages on the basis of log information input in the log data input step and deciding whether or not to output the

transition data on the basis of the obtained transition history and the output conditions stored in said output condition storage means; and

a step of transition data output for outputting the transition data in a case in which a decision is made in the decision step to output the transition data.

4. The Web site evaluation method according to Claim 3, wherein the output conditions stored in the output condition storage means are defined by the rate of divergence between standard transitions and the transition history, in a case in which the transitions for each of said Web pages prescribed in advance are treated as the standard transitions.

5. A computer-readable recording medium upon which is recorded a process for evaluating a Web site having a plurality of Web pages, comprising:

a process of log data input for inputting the access history to each of said Web pages as log data;

a process of output condition storage for storing output conditions for outputting transition data relating to transitions for each of said Web pages in output condition storage means;

a process of decision for obtaining the transition history for each of said Web pages on the basis of log information input in the log data input step and deciding whether or not to output the transition data on the basis of the obtained transition history and the output conditions stored in said output condition storage means; and

a process of transition data output for outputting the transition data in a case in which a decision is made in the decision step to output the transition data;

wherein a program for executing these processes by computer is recorded thereon.

6. The recording medium according to Claim 5, wherein the output conditions stored in the output condition storage process are defined by the rate of divergence between standard transitions and the transition history, in a case in which the transitions for each of said Web pages prescribed in advance are treated as the standard transitions.

## SUMMARY OF THE INVENTION

[0001]

### 1. Field of the Invention

This invention relates to a Web site evaluation system for evaluating a Web site having a plurality of Web pages, to a Web site evaluation method, and to a recording medium for recording these processes.

[0002]

### 2. Background of the Invention (Prior Art)

The number of accesses to a Web page on a Web site has been cited as one criterion for evaluating a Web site. In addition, methods for counting the number of accesses to Web pages are conventionally known.

[0003]

### [Problem the Invention Is to Solve]

However, while the methods described above for counting the number of Web page accesses is capable of tracking the number of total accesses to each Web page, these methods are not capable of identifying trends in how users navigate from one page to another, or in other words, trends in page transitions. As a result, it has been impossible to examine the strength of connections between different pages, or to study how the Web page transitions intended by the Web site creator diverge from the Web page transitions of actual users.

[0004]

Accordingly, an object of the present invention is to solve the problem described above by providing a Web site evaluation system, a Web site evaluation method, and a recording medium for recording the processes involved in the system and method, making it possible to track trends in Web page transitions by users accessing a Web site and to investigate whether the Web page transitions intended by the Web site creator have been performed.

[0005]

[Means of Solving the Problem]

The Web site evaluation system according to the present invention has log data input means for inputting an access history to each of said Web pages as log data; output condition storage means for storing output conditions for outputting transition data relating to transitions for each of said Web pages; decision means for obtaining the transition history for each of said Web pages on the basis of log information input using the log data input means and deciding whether or not to output the transition data on the basis of the obtained transition history and the output conditions stored in said output condition storage means; and transition data output means for outputting the transition data in a case in which a decision is made using the decision means to output the transition data.

[0006]

According to the present invention, the access history to each of the Web pages that make up a Web site is input as log data using the log data input means, while the decision means obtains the transition history for each of the Web pages on the basis of the log data previously input. In addition, the decision means makes a decision whether or not to output transition data on the basis of the obtained transition history and of the output conditions stored in the output condition storage means. Accordingly, by outputting the transition data on the basis of the Web page transition history, it is possible to output transition data for instances in which a user who accessed a Web site performed Web page transitions that conform to the output conditions.

[0007]

Also, in the Web site evaluation system as described above, the output conditions stored in the output condition storage means are defined by the rate of divergence between standard transitions and the transition history, if the transitions for each of said Web pages prescribed in advance are treated as the standard transitions.

[0008]

Accordingly, if the output conditions for outputting transition data are defined on the basis of the rate of divergence between the standard transitions and the transition history, it is possible to output transition data when the obtained transition history diverges greatly from the standard

transitions. It is also possible to output transition data when the rate of conformance between the transition history and the standard transitions is high.

[0009]

The Web site evaluation method according to the present invention has a step of log data input for inputting the access history to each of said Web pages as log data; a step of output condition storage for storing output conditions for outputting transition data relating to transitions for each of said Web pages in output condition storage means; a step of decision for obtaining the transition history for each of said Web pages on the basis of log information input in the log data input step and deciding whether or not to output the transition data on the basis of the obtained transition history and the output conditions stored in said output condition storage means; and a step of transition data output for outputting the transition data in a case in which a decision is made in the decision step to output the transition data.

[0010]

According to the present invention, the access history to each of the Web pages that make up a Web site is input as log data in the log data input step, while the decision means obtains the transition history for each of the Web pages on the basis of the log data previously input. In addition, in the decision step a decision is made whether or not to output transition data on the basis of the obtained transition history and of the output conditions stored in the output condition storage means. Accordingly, by outputting the transition data on the basis of the Web page transition history, it is possible to output transition data for instances in which a user who accessed a Web site performed Web page transitions that conform to the output conditions.

[0011]

In the Web site evaluation method as described above, the output conditions stored in the output condition storage means may be defined by the rate of divergence between standard transitions and the transition history, if the transitions for each of said Web pages prescribed in advance are treated as the standard transitions.

[0012]

Accordingly, if the output conditions for outputting transition data are defined on the basis of the rate of divergence between the standard transitions and the transition history, it is possible to output transition data when the obtained transition history diverges greatly from the standard transitions. It is also possible to output transition data when the rate of conformance between the transition history and the standard transitions is high.

[0013]

The recording medium according to the present invention is computer-readable recording medium upon which is recorded a process for evaluating a Web site having a plurality of Web pages, and has a process of log data input for inputting the access history to each of said Web pages as log data; a process of output condition storage for storing output conditions for outputting transition data relating to transitions for each of said Web pages in output condition storage means; a process of decision for obtaining the transition history for each of said Web pages on the basis of log information input in the log data input step and deciding whether or not to output the transition data on the basis of the obtained transition history and the output conditions stored in said output condition storage means; and a process of transition data output for outputting the transition data in a case in which a decision is made in the decision step to output the transition data; wherein a program for executing these processes by computer is recorded thereon.

[0014]

Using the program recorded on the recording medium according to the present invention, the access history to each of the Web pages that make up a Web site is input as log data using the log data input process, while the decision process obtains the transition history for each of the Web pages on the basis of the log data previously input. In addition, the decision process makes a decision whether or not to output transition data on the basis of the obtained transition history and of the output conditions stored in the output condition storage process. Accordingly, by outputting the transition data on the basis of the Web page transition history, it is possible to output transition data for instances in which a user who accessed a Web site performed Web page transitions that conform to the output conditions.

[0015]

Also, the recording medium as described above may be configured so that the output conditions stored in the output condition storage process may be defined by the rate of divergence between standard transitions and the transition history, if the transitions for each of said Web pages prescribed in advance are treated as the standard transitions.

[0016]

Accordingly, if the output conditions for outputting transition data are defined on the basis of the rate of divergence between the standard transitions and the transition history, it is possible to output transition data when the obtained transition history diverges greatly from the standard transitions. It is also possible to output transition data when the rate of conformance between the transition history and the standard transitions is high.

[0017]

[Embodiments of the Invention]

The following section describes in detail a preferred embodiment of the Web site evaluation system according to the present invention, accompanied by drawings. Note that in the descriptions in the drawings, identical elements are assigned identical numerical codes, and duplicate descriptions are omitted.

[0018]

Fig. 1 is a block diagram showing the configuration of a Web site evaluation system 10 according to the present embodiment. The Web site evaluation system 10 is connected to the Internet 30, and is able to send and receive log data, transition data, and other data to and from a Web terminal 20 having a Web site to be evaluated. The Web terminal 20 has data for the Web site and provides the Web site over the Internet 30.

[0019]

The Web site evaluation system 10 has a log data storage database 12 for storing log data (referred to hereafter as "log DB"), a log data input means 11 for inputting and storing log data sent from the Web terminal 20 to the log database 12, an output condition database 14 for storing



output conditions for outputting transition data (referred to hereafter as "output condition DB"), a decision means 13 for deciding whether or not to output transition data, and a transition data output means 15 for outputting transition data. The Web site evaluation system 10 also has an output condition input means 16 for inputting output conditions to be stored in the output condition DB 14.

[0020]

Next, the databases that are part of the Web site evaluation system 10 will be described.

[0021]

The log DB 12 stores a history of accesses to the Web site being evaluated as log data. Fig. 2 shows an example of data stored in the log DB 12. Log data includes data for each of the following fields: site ID, accessing user name, access time, and pages accessed. Site ID is an identification number assigned by the Web site evaluation system 10 in order to identify the Web site being evaluated. In the example shown in Fig. 2, the access history for the Web site with site ID: 1001 is stored in the database. Accessing user name is data identifying the user who has accessed the Web site. The accessing user name need not be the user's name, but can be the user's Internet address, for instance, as long as the user accessing the site can be uniquely identified. Access time is data indicating the time when each Web page on the Web site was accessed. Pages accessed is data indicating which Web pages have been accessed on the Web site identified by the site ID (in this example, site ID: 1001).

[0022]

The output condition DB 14 stores conditions required for output of transition data related to Web page transitions on each Web site. Fig. 3 shows data stored in the output condition DB 14. The output condition DB 14 includes the following fields: site ID, site name, URL, output destination, and output conditions. Site ID is an identification number for identifying a Web site, as with the site ID field described above. Site name is the name of the Web site identified by the site ID. URL is data indicating the URL of the Web site. Output destination is the address of the destination to which transition data for the Web page is to be output. Typically this is an address on the Internet 30. Output conditions are conditions indicating when output relating to Web page

transitions on a Web site is required. For example, on the Web site with site ID: 1001, which is an automobile sales site, if a pattern of transitioning from page A to page C is more frequent than a pattern of transitioning from page A to page B to page C, then the transition data is to be output. These output conditions can also be defined in terms of the rate of divergence from the Web page transitions intended by the Web site creator (standard transitions). For instance, on the automobile sales site, if the standard transition is considered to be the Web page transition sequence from "Information about Car A" (Page 1) to "Promotional Campaign for Car A" (Page 2) to "Request More Information about Car A" (Page 3), the proportion of the number of users who navigated to Page 3 in the standard transition sequence relative to the number of users who accessed Page 1 is the "rate of divergence," and this rate of divergence can be established as a condition for outputting transition data if the rate of divergence is larger than a prescribed value. By initiating output of transition data based on this type of condition, it is possible to observe whether or not the promotional campaign is effective in inducing users to request more information. It is preferable for output conditions to be sent from the Web terminal 20 and stored in the output condition DB 14 by the output condition input means 16.

[0023]

Next, the elements that make up the Web site evaluation system 10 will be described.

[0024]

The log data input means 11 has a function for inputting log data sent from the Web terminal 20 to the log DB 12.

[0025]

The decision means 13 has a function for obtaining the transition history for the Web page being evaluated, and for deciding whether or not to output the transition data on the basis of the transition history obtained and on the output conditions stored in the output condition DB 14.

[0026]

The transition data output means 15 has a function for outputting the transition data to the Web terminal 20 if a decision is made by the decision means 13 to output the transition data.

[0027]

Next, the operation of the Web site evaluation system 10 according to the present embodiment will be described, and the Web site evaluation method according to the present embodiment of the present invention will be described.

[0028]

First, the Web terminal 20 having the Web site to be evaluated sends output conditions for transition data over the Internet 30 to the Web site evaluation system 10 (S10). The Web site evaluation system 10 receives the output conditions sent from the Web terminal 20, and the received output conditions are stored in the output condition DB 14 by the output condition input means 16 (S12). The output condition input means 16 may be configured to store in the output condition DB 14 output conditions input directly from a keyboard 56, and the like, as well as output conditions received over the Internet 30.

[0029]

Next, the Web terminal 20 sends the Web site access history as log data to the Web site evaluation system 10 (S14). The log data sent at this time from the Web terminal 20 is log data accumulated over a prescribed time interval. It is possible for the Web site evaluation to approach real-time status by shortening this "prescribed time interval." The Web site evaluation system 10 receives the log data sent from the Web terminal 20 and stores the data in the log DB 12 using the log data input means 11 (S16).

[0030]

Next, the decision means 13 of the Web site evaluation system 10 analyzes the log data stored in the log DB 12 and obtains the transitions for each Web page from the access history for that Web site (S18). This point will be discussed specifically in reference to the example log data shown in Fig. 2. First, looking at User 1, the data shows that User 1 accessed Page A at 20:30:34 and Page C at 20:31:24. From this it is apparent that User 1 navigated from Page A to Page C. Similarly, looking at User 2, it is apparent that User 2 navigated from Page A via Page B to Page C. By analyzing in this manner the access history of all users who have accessed the Web site, it is

possible to obtain the number of users who navigated from Page A via Page B to Page C, and the number of users who navigated from Page A to Page C.

[0031]

Next, the decision means 13 compares the results of the analysis performed using the steps described above with the output conditions and decides whether to output transition data for the Web site (S20). The condition stored in the output condition DB 14 as shown in Fig. 3 for outputting transition data to the Web terminal 20 with a site ID: 1001 is that the number of users who navigated from Page A to Page C is greater than the number of users who navigated from Page A to Page C via Page B. If the decision is that the results conform to the output condition, the decision means 13 sends the transition data output means 15 a transition data output command. When the transition data output means 15 receives the transition data output command, it sends the transition data to the Web site 20 having the Web site being evaluated (S22). The transition data is sent at this time to the "output destination" stored in the output condition DB 14 (see Fig. 3). However, if the decision is that the results do not conform to the output condition, control passes to the steps prior to log data acquisition (S12 through S16).

[0032]

Next, the Web terminal 20 receives the transition data sent from the Web site evaluation system 10 (S24), and operation of the Web site evaluation system terminates.

[0033]

Next, the effect of the Web site evaluation system 10 according to the present embodiment will be discussed. The Web site evaluation system 10 obtains a transition history for a Web page on the basis of log data sent from the Web terminal 20 and decides whether or not to output the transition data on the basis of the transition history obtained and on the output conditions stored in the output condition DB 14. Accordingly, if the transition history for a Web page on a site fulfills prescribed conditions, it is possible to output the transition history to the Web terminal 20. As a result, the Web terminal 20 is able to obtain information about which pages were accessed and how users navigated between pages when users accessed the Web site. In addition, the transition data for the Web page becomes an important key to understanding the connections

between the Web pages that make up the Web site. For example, if a page is often skipped, this shows that either the connection with the pages before and after is weak, or that the page has low necessity for the users. Also, if the output conditions are set so that transition data is output whenever a change occurs in Web page transition trends, this knowledge becomes key to understanding that new products and banners with high impact appear on those pages.

[0034]

Moreover, according to the present invention, defining the output conditions for transition data in terms of the rate of divergence between the standard transitions and the transition history makes it possible to send transition data to the Web terminal 20 whenever the rate of divergence between the standard transitions and the transition history is large, or whenever the rate of divergence is small. Furthermore, it is possible to evaluate Web pages on the basis of the rate of divergence.

[0035]

Next, a computer-readable recording medium 40 (referred to hereafter as "recording medium") capable of realizing the Web site evaluation method described above, will be discussed in reference to Figs. 5-7. Here, the recording medium 40 is able to transmit to a reading device 51 provided as a hardware resource for a computer 50 program listing content in the form of signals corresponding to changes in magnetic, optical, electrical, or other types of energy corresponding to the program listing content. Examples of the recording medium 40 include magnetic disks, optical disks, CD-ROM, and memory 53 in the computer 50.

[0036]

Fig. 5 is a configuration chart for the recording medium 40 according to the present embodiment. Provided on the recording medium 40 are a program area 50a for recording the program and a data area 40b for storing data files.

[0037]

The data area 40b has an area capable of storing log data 45 and output condition data 46. Stored in these areas are the same data as the log data DB 12 [sic] stored in the log DB 12 and the output conditions stored in the output condition DB14 as shown in Fig. 1.

[0038]

The program area 40a has a log data input module 41 for inputting log data and storing the input log data in the data area 40b; an output condition input module 42 for inputting output conditions and storing the output conditions that are input in the data area; a decision module 43 for deciding whether or not to output the transition data on the basis of the log data 45 and the output condition data 46 stored in the data area 40b; and a transition data output module 44 for outputting the transition data.

[0039]

Here, the functions realized by activating the log data input module 41 and the output condition input module 42 are the same as the functions of the log data input means 11 and the output condition input means 16 shown respectively in Fig. 1. In addition, the function realized by activating the decision module 43 is the same as the function of the decision means 13 shown in Fig. 1. The function realized by activating the transition data output module 44 is the same as the function of the transition data output means 15 shown in Fig. 1.

[0040]

Fig. 6 shows the hardware configuration of the computer 50 for executing the programs recorded on the recording medium 40. Fig. 7 is a perspective view of the computer 50 for executing the programs recorded on the recording medium 40. As shown in the drawings, the computer 50 has a flexible drive device, a CD-ROM device, a magnetic tape drive device or other reading device 51; task memory 52 (RAM) in which an operating system (OS) is resident; memory 53 for storing recorded access log data and content data; a display 54 that is a display means; a mouse 55 and a keyboard 56 that are input means; a printer 57 for making printed output of the Web pages created; and a CPU 58 for executing the programs. Here, when the recording medium 40 is inserted in the reading device the data recorded on the recording medium 40 becomes accessible

from the reading device 51, and the programs recorded on the program area of the recording medium 40 become executable by the computer 50.

[0041]

The recording medium 40 according to the present embodiment makes it possible for the computer 50 to output transition data on the basis of the log data (Web site access history) 45 and the output condition data 46. By accessing this output result, the Web site creator can find out how users are navigating between pages on the Web site, and can evaluate the Web site.

[0042]

The foregoing section has described an embodiment of the present invention in detail. However, the present invention is not limited to the embodiment described above.

[0043]

In the Web site evaluation system 10 according to the embodiment described above, the Web site evaluation system 10 is constructed on a terminal different from the Web terminal 20 having a Web site, and is connected to the Web terminal 20 via the Internet 30. However, the Web site evaluation system 10 may be constructed on the Web terminal 20 having a Web site to be evaluated. If this configuration is adopted, there is no need to send log data over the Internet 30, and it suffices to do the log data {tr. note \*1} accumulated on the Web terminal 20, and so it is possible to obtain Web page transition data in real time.

[0044]

Also, if the terminal that enters the output conditions and the destination terminal for transition data output are connected over the Internet 30 and are designated in advance, there is no need to be the same terminal as the terminal 20 having a Web site.

[0045]

[Effect of the Invention]

According to the present invention, access histories for each Web page are input as log data by a log data input means, transition histories for each Web page are obtained, and a decision means

decides whether or not to output the transition data on the basis of the transition histories obtained and of the output conditions for outputting transition data stored in an output condition storage means. Accordingly, it is possible to output transition data in instances in which users who accessed the Web site have performed Web page transitions conforming to the output conditions.

#### [Brief Description of Drawings]

Fig. 1 Block diagram showing a Web site evaluation system according to the present embodiment.

Fig. 2 View showing an example of data stored in a log data database.

Fig. 3 View showing an example of data stored in an output condition database.

Fig. 4 Flowchart showing the operations of the Web site evaluation system according to the present embodiment.

Fig. 5 Configuration chart showing a computer-readable recording medium according to the present embodiment.

Fig. 6 View showing the hardware configuration of a computer for executing programs recorded on the recording medium.

Fig. 7 Perspective view of the computer for executing the programs recorded on the recording medium.

#### [List of Symbols]

- |    |                              |
|----|------------------------------|
| 10 | Web site evaluation system   |
| 11 | Log data input means         |
| 12 | Log data database            |
| 13 | Decision means               |
| 14 | Output condition database    |
| 15 | Transition data output means |
| 16 | Output condition input means |
| 20 | Web terminal                 |
| 21 | Web site data                |



30	Internet
40	Recording medium
41	Log data input module
42	Output condition input module
43	Decision module
44	Transition data output module
50	Computer
51	Reading device
52	Task memory
53	Memory
54	Display
55	Mouse
56	Keyboard
57	Printer
58	CPU

Fig. 1

12 Log data database  
13 Decision means  
14 Output condition database  
11 Log data input means  
15 Transition data output means  
16 Output condition input means  
30 Internet  
21 Web site data

Fig. 2

[column headings, left to right]

Site ID                      Accessing User Name                      Access Time                      Page Accessed

Japanese text in col. 2 from left: "User" (repeated, e.g. "User 4, User 2...")

Fig. 6

52 Task memory  
53 Memory  
40 Recording medium  
51 Reading device  
54 Display  
55 Mouse  
56 Keyboard  
57 Printer

Fig. 3

Site ID	Site Name	URL	Output Destination	Output Condition
1001	Auto Sales	www.aaa....	aaa@auto...	(Page A -> Page C) > (Page A -> Page B -> Page C)
1002	Restaurant Info	www.bbb....	bbb@rest...	(Page D -> NOT Page E) > (Page D -> Page E)

Fig. 4

10      Web site evaluation system  
Start  
S12    Receive and store output conditions  
S16    Receive and store log data  
S18    Analyze log data  
S20    Conforms to output conditions?  
S22    Send transition data  
END

20      Web terminal  
Start  
S10    Send output conditions  
S14    Send log data  
S24    Receive transition data  
END

Fig. 5

41      Log data input module  
42      Output condition input module  
43      Decision module  
44      Transition data output module  
40a    Program area  
45      Log data  
46      Output condition data  
40b    Data area

Fig. 7

[no translation required]

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Continued from front page:

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Translator's notes:

(\*1) I suspect there is an omission here, of a verb in the form {noun + do = noun-ize}, a common construction in Japanese.